

NOTES ON *UTRICULARIA BIFLORA* AND *U. FIBROSA*

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THE Bladderwort, *Utricularia biflora* Lam., grows in certain wet places in Coastal Plain pine barrens, from southeastern Massachusetts to Florida, Texas, and Oklahoma. Rare and local in the north, it nevertheless seems odd that but one station, herewith reported for the first time, seems to be known for this species in New Jersey, where likely habitats are so frequent.

This station is on the Public Hunting and Fishing Grounds, at Archer Corner, Ocean County, New Jersey, where the writer collected plants in August, 1954. Less than a half-meter square, the colony grew in water just a few centimeters deep, the submerged parts enmeshed in muck, amidst remnant cranberry and sphagnum of a receding bog, well invaded by upland flora, perhaps as a result of fishing management operations on the preserve. A colored photograph was made of the colony, later affixed to the voucher of this collection, deposited in the herbarium of the New York Botanical Garden. A second collection was made in June, 1955, the specimens gathered and prepared with special care so that the trichotomous leaves, nearly all bladder-bearing, and the delicate, slender habit typical of this species are well exhibited. This collection is deposited in the same folder with the first one.

*U. biflora* was first reported from New Jersey by Taylor (1915). Taylor cited the locality as "Georgetown, Sussex County, New Jersey." Sussex County is largely Alleghenian upland, and unlikely to offer acceptable habitat for *U. biflora*. Furthermore, there is no "Georgetown" in Sussex County. Mr. Joseph Monachino, of the New York Botanical Garden Herbarium, wrote me that there was a specimen there (which I later examined), collected by N. L. Britton (No. 23), bearing, in Britton's handwriting, the legend: "edge of pond near Georgetown," with a printed label: "Plants from Sussex County, Delaware, July 5, 6, 1908." There is, of course, a Georgetown, Sussex County, Delaware, and Taylor probably based his report on this specimen. Subsequent Floras carried on this misconception.

Closely related to *U. biflora*, and with a remarkably similar

range, is *U. fibrosa* Walt. It is a larger and coarser plant than *U. biflora*, with usually more complexly developed leaf structure. Current manuals all state that *U. fibrosa* has two types of leaves: the usual, bladder-bearing leaves, associated with the scape, and specialized, purely vegetative leaves, not bearing bladders, on certain more remote branches, crowded on the branch, finely dissected, forming a plumose, natant organ. *U. biflora* suffices with the bladder-bearing leaves; it develops no specialized vegetative branches.

In perusing considerable herbarium material of both species, the writer felt uneasy about the character of specialized vegetative branches assigned to *U. fibrosa*. Some specimens clearly exhibited these natant organs; others had either lost them, or perhaps never had them. Unless carefully prepared, dried Bladderworts can be notoriously difficult to identify, and this might account for some of my difficulty. Yet there are other reasons for questioning the constancy of vegetative leaves in *U. fibrosa*. As Gleason (1952) points out, both *U. biflora* and *U. fibrosa* may become stranded, in which case, vegetative leaves may not be detected in the latter. There is evidence to indicate that *U. fibrosa* may prefer deeper water than *U. biflora*. This I observed in New Jersey. Collectors of *U. biflora* make more frequent reference to especially shallow sites than do collectors of *U. fibrosa*, judging from herbarium sheet notations.

The plumose, natant, vegetative branches of *U. fibrosa* are analagous to the finely dissected leaves of *Ceratophyllum* or similar aquatics in function. It has already been demonstrated that when this species becomes stranded, these organs evanesce. It would be a notable experiment to observe what might happen if a stranded *U. fibrosa* were reset in deeper water—would plumose leaves reappear? Is there a possibility that if *U. biflora* were reset in deeper water, it would develop vegetative branches? In other words: vegetative branches are not always present as a key character of *U. fibrosa*—are they really inherently specific, or are they a physiological response to environment?

Extensive field studies, experiments, and cytotaxonomic investigation are needed for a true, intrinsic concept of Bladderwort taxonomy. These fascinating aquatics offer a nicely concise problem for taxonomic research, and a grand oppor-

tunity for a student to make a major contribution to botanical knowledge.

In the absence of well-exhibited leaf characters, *U. biflora* may generally be distinguished from *U. fibrosa* by dimensions. *U. biflora* is delicate, with a filiform scape, less than a millimeter in diameter, and from five to fifteen centimeters long from the top submersed branch to the lowest peduncle. *U. fibrosa* is much coarser, with a scape 1 to 2 millimeters in diameter, and from ten to twenty or more centimeters in length.

To Mr. Joseph Monachino, of the New York Botanical Garden Herbarium, I extend my sincerest appreciation for much that is basic to this paper.—1258 BEACH ROAD, RIVIERA BEACH, FLORIDA.

#### LITERATURE CITED

- TAYLOR, NORMAN. 1915. Flora of the Vicinity of New York. Mem. N. Y. Bot. Garden. V: 562-3.
- GLEASON, HENRY A. 1952. The New Britton and Brown Illustrated Flora of the Northeastern States and Adjacent Canada. Vol. 3: 259, 262-3.

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## YONKERS WOOL MILL PLANT RECORDS

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FOR years to come Fernald's 8th Edition Gray's Manual of Botany and Gleason's The New Britton and Brown Illustrated Flora will offer ready means of comparing divergent views on the plants of the northeastern United States and adjacent Canada. The Manual, in general, has a more inclusive approach and admits more taxa, particularly of the minor kind, than the New Britton and Brown. Some adventive or introduced species, like *Setaria Faberii* Herrm., *Cynosurus echinatus* L., *Polygonum perfoliatum* L., and *Phellodendron japonicum* Maxim., appear in the former but not in the latter work. There are, however, several noteworthy instances where the situation is reversed. *Scirpus mucronatus* L. and *Scirpus Tabernaemontani* Gmel. are two examples. Incidentally, both of these were collected on ballast at Camden, New Jersey, and probably both were from the Isaac C. Martindale herbarium dated 1877 or about that time; yet the New Britton and Brown accords